

Try a few of your own

Decide whether each of these relations are Reflexive, symmetric, antisymmetric, and transitive.

\subseteq on $\mathcal{P}(\mathcal{U})$

\geq on \mathbb{Z}

$>$ on \mathbb{R}

$|$ on \mathbb{Z}^+

$|$ on \mathbb{Z}

$\equiv (\text{mod } 3)$ on \mathbb{Z}

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Symmetry: for all $a, b \in S$, $[(a, b) \in R \rightarrow (b, a) \in R]$

Antisymmetry: for all $a, b \in S$, $[(a, b) \in R \wedge a \neq b \rightarrow (b, a) \notin R]$

Transitivity: for all $a, b, c \in S$, $[(a, b) \in R \wedge (b, c) \in R \rightarrow (a, c) \in R]$

Reflexivity: for all $a \in S$, $[(a, a) \in R]$